AI FOR EVERYONE: Building Better Businesses WITH LOW- OR NO-CODE AI

Imagine building an application powered by artificial intelligence (AI) with a rudimentary knowledge of coding! Well, now anyone can do that with AI-powered low-code/no-code platforms. Read on to know more

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A manufacturing shop floor of a 3D printing company was overburdened with multiple orders from diverse systems. The arduous task of managing the raw material, which included processing, loading, blending, unloading, manual quality checks, and recycling, was taking a toll on productivity.

Despite the trials, this tale does have a happy ending, with a 65% reduction in manual intervention. The headcount of the labour team involved in the processes went down from fifty to five!

You may question the authenticity of these figures and wonder if the team had a magic wand or a fairy godmother. Well, your hypothesis will be refuted, as the only magic that worked wonders for this company was a tool powered by artificial intelligence (AI).

The 3D printing firm approached a digital product engineering company called Nagarro for a solution. Nagarro developed a raw material management application on Mendix, a low-code development platform. This application allowed the 3D printing company to automate the raw material management processes and allowed the workers to gain analytical insights on the material used, reducing wastage.

The lingering question that remains unanswered is, what is a low-code development platform and where is the magic of this AI-powered tool?

From medical diagnostic tools to self-driving cars, AI has transformed how we work and perform our tasks. The world is moving towards a technology paradigm, powered by AI to automate repetitive and optimisable chores, allowing humans to focus on high-level tasks that require creativity, problem-solving, and critical thinking.

With the growing importance of AI, and the increasing demand for

digital transformation in businesses, companies are now leaning towards low-code/no-code (LCNC) development platforms to build AI solutions to enhance productivity, increase return on investment, and reduce costs.

Unravelling the magic

LCNC AI-powered tools and platforms enable users to create and deploy machine learning models and other AI applications without extensive coding knowledge. These platforms have pre-built AI models and algorithms that allow any user to develop custom applications for image and speech recognition, fraud detection and prevention, chatbots and virtual assistants, predictive analytics and machine learning models, natural language processing (NLP) and sentiment analysis, and business process automation.

The difference between low-code and no-code AI is exactly what the name suggests. Low-code AI platforms allow users to design and develop applications using graphical tools to reduce the need for writing multiple lines of code. No-code provides a similar experience but goes the extra mile of removing the need to write even a single line of code.

An ideal successful business is one where the capital input is low, productivity and output are high, and the time taken to achieve that level of productivity is low. This sets the perfect stage for the inevitable and obvious technology—low-code/ no-code AI.

These platforms enable organisations to build and deploy applications that automate processes, improve efficiency, and enhance customer experiences. Since most of the development becomes visual, the long hours otherwise spent on coding and debugging reduce the time-to-market significantly, providing businesses with a competitive edge. Flexible application development manages to stand the vagaries of digital transformation.

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— Sachin Vijan, Technology Director, Nagarro

LCNC AI provides businesses with quick adaptability to changing market conditions and customer needs. The provision for rapid modifications allows the developer to quickly iterate and make changes to applications, depending on the needs of their clients and the market.

While talking about speed and time-to-market, one can recall an interesting anecdote of a California based energy storage solutions company, Advanced Microgrid Solutions (AMS), that develops and operates energy storage systems to reduce energy costs. The national electricity market (NEM) uses a spot market where all users bid for the consumption and supply of energy every five minutes. The company faced the massive challenge of predicting demands and coming up with dynamic bids in minutes while processing massive amounts of market data.

The company solved this challenge by using Amazon Web Services (AWS) LCNC tool, Amazon SageMaker, to build a deep learning model using TensorFlow. SageMaker provided the company with the best model parameters, and within weeks their model showed a remarkable improvement in market forecasts across all energy products in net energy metering.

The novelty of LCNC tools lies in the fact that even non-technical users can develop applications using visual interfaces, drag-and-drop functionality, and pre-built templates, democratising access to technology. Enterprise owners can ease up on the expensive training programmes for hardcore IT professionals. The cost of traditional development is reduced significantly. Business owners can tap into a wider pool of talent who aren't necessarily surfing on the waves of information technology (IT).

Due to the visual functionalities of LCNC AI platforms, a lot of the complexities of building and deploying AI models are removed, paving the way for more focus on higher-level tasks, such as designing the user interface or developing business logic. These platforms can be deployed for internal as well as external applications via software-as-a-service (SaaS) models.

Technology director at Nagarro, Sachin Vijan, explains, "Internal applications, such as HR, finance, IT, procurement, and legal, are well-suited for low-code base development, which can lead to significant improvements in efficiency and productivity, resulting in a rapid return on investment. External applications refer to business applications that range from B2B, B2C, B2G, and all other sorts of combinations. There is a remarkable trend where businesses have started building applications on low-code platforms, ranging from small supplier distribution networks to whole banking systems."

Director of IBM Automation, Vishal Chahal, explains how businesses can get the best output from these tools. "Since the LCNC approach is a pay-as-you-go model in SaaS deployments, it results in a better return on investment (ROI)—with lower infrastructure, talent, or maintenance cost, and faster agile releases. It also addresses the growing demand for hyper-automation in businesses to remain competitive," he says.

An ocean of LCNC AI platforms

In a perpetually transitioning world, LCNC AI platforms can help en-

terprise owners in multiple ways, but the ocean of AI is made of a combination of machine learning, deep learning, and natural language processing technologies. The pool of serviceable users that can benefit from embedded AI in LCNC tools is constantly widening with both application developers and end users profiting off the platforms, across a wide degree of applications. It makes one wonder how a low-code/ no-code AI platform can interconnect multiple technologies within a single interface.

The answer to this lies in the fact that low-code/no-code AI tools are not just limited to individual platforms but can also be integrated with different tools to interoperate through common data formats, APIs (application programming interface), or connectors, and plugins for cloud storage platforms, databases, and data visualisation tools. Vijan says there are more than 50 LCNC AI platforms available in the market, each with its unique selling points and challenges.

"These platforms offer full or partial machine learning solution development. Some providers use AI as an end product for developing AI solutions, while others use its assistance for application development, management, rollout, or maintenance. Most of these platforms are domain or vertical agnostic," Vijan says.

Whenever the mention of new and emerging technologies arises, one cannot expect the big tech firms to be left behind. The big five tech firms have invested over $220 billion in technology with the major portion on AI, shares Vijan.

Apple's LCNC platform, Apple CreateML, provides drag-and-drop functionality to create iOS applications. The interface provides recommendations, classification, image recognition, and text processing. It collects data through the iPhone camera and microphone. A Mac computer, with a graphical processing unit, can be used to quicken the training process.

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Amazon SageMaker is equipped with tools to build, train, and deploy machine learning models for predictive analytics applications, using open source frameworks, such as TensorFlow, PyTorch, and Apache MXNet.

Google has its own set of tools, including Google AutoML, which comes with different tools for building machine learning models, computer vision models, NLP models for sentiment analysis and text classification, and machine translation models. The search engine behemoth has another tool, Teachable Machine, which comes with tutorials to aid users in training algorithms to classify and categorise data, unlike other platforms that are designed to create operational applications.

IBM Corporation has effectively incorporated LCNC AI capabilities in all its platforms across the development, deployment, and management of solutions. Named after IBM's first CEO, Thomas J. Watson, IBM Watson is an AI platform that uses AI tools, such as NLP and machine learning, to understand and analyse large amounts of unstructured data, such as text, images, and videos, to allow businesses to gain insight and improve decision-making.

IBM Watson Studio is a low-code/no-code tool which is a part of the Watson platform. It can analyse, cleanse and shape, and ingest streaming data. It comes with a drag-and-drop interface to build, train, and deploy machine learning models, which can be used by those without extensive programming experience.

The company further plans to release a new data and AI platform, IBM Watson, which comes with a trained foundation and open source models. It also provides digital labour platforms, such as Watson Orchestrate, that use NLP to draw from a catalogue of basic and advanced skills to execute users' requests—in context and the right order without any specialised training.

"Orchestrate allows integration across various apps and tools to accomplish tasks in a simple, no-code interface. Users can automate the observability, optimisation, and remediation of their hybrid cloud solutions with low to no coding requirements, with IBM Turbonomics and IBM Instana Observability, and Watson AIOps. These platforms also allow the users to monitor their IT systems while getting AI-driven actions for reducing cost and performing dynamic optimisation to upscale or downscale their systems with no coding and minimal IT support," Chahal elaborates.

Navigating through the challenges

Even a tiny iceberg can sink the greatest of ships in a vast ocean. Steering a business with the help of LCNC AI platforms has resulted in the development of AI based solutions with greater ease and speed, but no journey is complete without challenges. While it may be easy for end-consumers to independently build small applications, it is necessary to consider several critical factors in the development and adoption of enterprise-grade LCNC AI applications at the organisational level.

With pre-built templates, customisation can often be limited, especially when an enterprise needs a very spe-

cific solution. In such cases, developers can use APIs or other integrations to add their code or models to the platform. This would, however, require additional technical expertise to set up and configure properly.

The addition of third-party services and APIs to provide additional functions or integration with other platforms increases the risk of security breaches. Some LCNC AI tools require users to upload sensitive data, such as customer information or financial data. This data can be at risk if proper security measures are not put in place. Built-in security features, such as data encryption, can protect sensitive data and prevent any cyber-attacks.

In case of low code, developers use software development tools that ease monitoring by security teams. A full static or dynamic analysis becomes tough for platform-generated code. Such a situation could lead to new threats, such as data leaks and potential compliance violations, which may escape the notice of security teams. Limiting and monitoring access controls along with involving security and identity teams in the application design process could prevent any illicit privilege use.

Chahal believes that deploying a few important guardrails like auditability, lineage, and role based execution around the design, and deployment of automation tasks could help minimise any security implications. Adopting service providers that offer security controls, such as data encryption, identity federation, and logging, can also mitigate the risks that come with the adoption of low-code/no-code AI platforms.

Giving an example of how IBM's low-code/no-code platforms provide the features to audit the machine learning models, Chahal elaborates, "These platforms de-bias the data used to train the machine learning models and maintain the lineage of the data and information that gets exchanged through an automated task. The automation tasks are mapped to user roles and thus provide access mechanism and authorisation to design and execute these tasks."

By establishing data quality standards, investing in the right human resources and tools for model deployment and management, and incorporating machine learning into existing IT systems, enterprises can easily sail through these challenges.

Embracing the future

The International Data Corporation (IDC) released a report earlier in January this year, forecasting a $21 billion growth in 2026 in the worldwide market for low-code, no-code, and intelligent developer technologies (LCNCIDT). The report stated that the demand for these technologies would allow the revenue to grow at a five-year compounded annual growth rate (CAGR) of 17.8% from 2021 to 2026.

In India, the low-code/no-code market has been growing at a CAGR of 15% since 2019. It generated a revenue of around $400 million during FY21 for IT service providers and startups, according to a NASSCOM report published in March 2022.

"The market for LCNCDIT technologies is being driven by the global shortage of full-time developers," says Michele Rosen, Research Manager of low-code, no-code, and intelligent developer technologies at IDC. She expects this situation to persist through this decade to create a big market for technologies that improve developer output and increase the potential number of developers.

The adoption of low-code/no-code AI platforms, to optimise development and equip non-technical developers with tools to create and modify digital solutions, will further be propelled by extensive growth in AI, which is becoming the fundamental element of all technology offerings. Vijan adds that the enhancement of developer productivity and the speed at which AI based solutions are being created using LCNC AI tools have paved the way for the creation of personalised AI based solutions.

"With LCNC AI platforms and tools, applications can be created without prior technical knowledge in AI development. While large language models like GPT3 and GPT4 can create websites from a sketch, they are not widely used in the industry currently. However, the quick release of productivity solutions in the near future will improve internal process efficiency by enhancing competency with AI-assisted coding and raising baseline offers with AI solutions," he says.

To build a successful business, entrepreneurs and business owners need to adopt new and unique ways of digital transformation. It's no secret that AI-assisted development in a business enhances productivity, increases ROI, and reduces costs. Low-code/no-code AI platforms and tools are merely skimming through the top layer of the vast ocean of disruptive technologies.

Despite that, it is interesting to note how AI-powered LCNC technologies remove the pertinent debate of AI replacing humans. The scarcity of skilled developers has created an urgency for everyone to learn and implement tools that reduce the time, intricacies, and cost of delivering solutions. AI-powered LCNC tools democratise access to technology for a wider pool of users, providing a chance for businesses of all sizes to stay competitive in today's fast-paced digital environment. EFY

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